

LISTING OF CLAIMS:

This listing of claims, including newly added claims 24-30, will replace all prior versions, and listings, of claims in the application:

Claims 1-14 (Canceled)

Claim 15 (Currently Amended): An image processing apparatus

comprising:

an imaging optical system for forming an image of an object on an imaging surface;

a color imaging device including photo-detectors and a color filtersfilter arranged on the imageimaging surface in two-dimensions, for performing photoelectric conversion of the image of the object formed by the imaging optical system;

shift drive means for shifting the imaging optical system and the photo-detectors relative to each other; and

a control unit for generating asingle synthesized image data using image data of the image of the object obtained through selected only one color of the color filtersfilter for ~~a selected color of the color imaging device~~, and image data of ~~anthe~~ image of the object obtained through the selected only one color of the color filtersfilter when the imaging optical system and the photo-detectors are shifted relative to each other by the shift drive means by a distance corresponding to a ~~pixel~~predetermined pitch on the imaging surface in a predetermined direction;

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F/
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wherein the control unit ~~controls the shift drive means for shifting the image optical system the photo detectors relative to each other by a distance corresponding to a predetermined pitch in a plurality of different directions to obtain a plurality of images, and generates a single monochromatic image using image data of obtained plurality of images and image data of the synthesized image~~includes output means for outputting the single synthesized image data as single monochromatic image data.

Claim 16 (Currently Amended): An image processing apparatus according to Claim 15, wherein the color ~~filters for~~filter includes three colors ~~are types of color portions~~ arranged according to a Bayer scheme.

Claim 17 (Previously Presented): An image processing apparatus according to Claim 15, wherein the predetermined pitch is a distance corresponding to $1/n$ (n is an integer) of a pixel on the imaging surface.

Claim 18 (Currently Amended): An image processing apparatus according to Claim 17, wherein the control unit repeats shifting by the distance corresponding to $1/n$ (n is an integer) of the pixel on the imaging surface a ~~plurality of~~predetermined number of times.

Claim 19 (Previously Presented): An image processing apparatus according to Claim 18, wherein the control unit obtains N images, when the predetermined number of times is N .

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Claim 20 (Currently Amended): An image processing apparatus according to Claim 15, wherein the selected only one color of ~~three colors~~ the color filter is green.

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Claim 21 (Currently Amended): An image processing method comprising:

forming an image of an object on an imaging surface of a color imaging device by an imaging optical system;

extracting first image data of the image of the object of a selected only one color from the image of the object formed on the ~~image~~ imaging surface;

shifting the ~~imaging optical system and the color imaging device~~ relative to each other image of the object formed on the imaging surface by a distance corresponding to a pixel predetermined pitch on the imaging surface in a predetermined direction;

extracting second image data of the image of the object of the selected only one color from an image of the object obtained after shifting is performed;

~~generating synthesized image data using~~ synthesizing the first and second image data to generate single synthesized image data;

~~shifting the imaging optical system and the color imaging device relative to each other by a distance corresponding to 1/n (n is an integer) of a pixel on the imaging surface in different directions a plurality of numbers of times to obtain a plurality of image data of the selected color; and~~

~~generating a monochromatic image by synthesizing outputting the single synthesized image data and the plurality of image data of the selected color as single monochromatic image data.~~

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Claim 22 (Previously Presented): An image processing method according to Claim 21, wherein the selected color of three colors is green.

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Claim 23 (Currently Amended): An image processing method according to Claim 21, wherein the color imaging device includes photo-detectors arranged on the imaging surface each forming a pixel, and a color filter ~~filters for filter~~ having three types of color portions ~~colors~~ arranged at positions respectively corresponding to the photo-detectors, and the image of the object is formed on the photo-detectors through the color ~~filters~~ filter by the imaging optical system.

Claim 24 (Newly Added): A method according to Claim 21, wherein the steps for shifting the image of the object formed on the imaging surface and extracting the second image data are repeated to extract a plurality of second image data.

Claim 25 (Newly Added): An image processing apparatus comprising:
an imaging optical system for forming an image of an object on an imaging surface;

a color imaging device including photo-detectors and a color filter whose a plurality of color portions are arranged on the imaging surface in two-dimensions, for

performing photoelectric conversion of the image of the object formed by the imaging optical system;

control means;

shift drive means for shifting the imaging optical system and the color imaging device relative to each other under control of the control means by a distance corresponding to a predetermined pitch on the imaging surface in a predetermined direction;

image synthesizing means for generating a single synthesized image using image data of the image of the object obtained through selected only one color of color portions of the color filter of the color imaging device, and image data of an image of the object obtained through the selected only one color of color portions of the color filter when the imaging optical system and the color imaging device are shifted relative to each other by the shift drive means; and

output means for outputting the single synthesized image data generated by the image synthesizing means as a single monochromatic image data under control of the control means.

Claim 26 (Newly Added): An apparatus according to Claim 25, wherein the shift drive means shifts the imaging optical system and the color imaging device relative to each other by distances corresponding to a predetermined pitch on the imaging surface in predetermined plurality directions different from each other.

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Claim 27 (Newly Added): An apparatus according to Claim 25,
wherein the color filter includes three types of color portions arranged according to a
Bayer scheme.

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Claim 28 (Newly Added): An apparatus according to Claim 25,
wherein the predetermined pitch corresponds to $1/n$ (n : integer) of a pixel in the
imaging surface.

Claim 29 (Newly Added): An apparatus according to Claim 28,
wherein the control means controls the shift drive means to repeat a plurality of shifts
by the distances corresponding to $1/n$ (n : integer) of the pixel in the imaging surface.

Claim 30 (Newly Added): An apparatus according to Claim 25,
wherein the selected only one color of color portions of the color filter is green.
